

Claims:

1. A system for communication between a host and a device, comprising:
a host coupled to a storage element by a first high-speed bus; and
a device coupled to a data forwarding element by a second high-speed bus; wherein
said data forwarding element is coupled to said storage element via a data transmission
medium;
said device is to receive a preliminary message from the host; and
said device is to send a reply, in response to the preliminary message, for storage in the
storage element; wherein after at least one secondary message is sent from the host to the storage
element, said reply is to be sent from the storage element to the host.
2. The system of claim 1, wherein the preliminary message is a data request, the at least one
secondary message is a data request follow-up, and the reply is a data reply.
3. The system of claim 1, wherein the preliminary message is a data send, the at least one
secondary message is a data send follow-up, and the reply is a data receipt acknowledgement.
4. The system of claim 1, wherein the first high-speed bus and the second high-speed bus
operate under Universal Serial Bus (USB) protocol.
5. The system of claim 4 further comprising:
a first transceiver communicatively coupled between the storage element and the data
transmission medium; and

4 a second transceiver communicatively coupled between the data transmission medium
5 and the data forwarding element; wherein
6 said first transceiver and said second transceiver are to provide protocol translation,
7 allowing non-USB protocol transmission on the data transmission medium.

1 6. The system of claim 1, wherein the storage element is a First In, First Out (FIFO) buffer
2 and the data forwarding element is a transaction translator.

1 7. The system of claim 1, wherein the preliminary message is a start split and the at least
one secondary message is a complete split.

2 8. The system of claim 1, wherein the data transmission medium is a data transmission
cable.

3 9. The system of claim 1, wherein the data transmission medium is a wireless data
transmission device.

1 10. The system of claim 1, wherein:
2 during a first microframe of a plurality of microframes, each microframe having a
3 microframe duration of equal value, the preliminary message is to be sent from the host to the
4 storage element;

5 the preliminary message is to be sent from the data forwarding element to the device and
6 the reply is to be sent from the device to the data forwarding element during a second
7 microframe; and

8 the at least one secondary message is to be sent from the host to the storage element and
9 the reply is to be sent from the storage element to the host during a third microframe.

1 11. The system of claim 10, wherein the data forwarding element and the device maintain a
2 perception of each microframe that is advanced in phase an advance amount with respect to the
3 perception of each microframe by the host and the storage element.

4 12. The system of claim 11, wherein the advance amount is equal to ten percent of the
5 microframe duration.

6 13. The system of claim 1, wherein:

7 during a first microframe of a plurality of microframes, each microframe having a
8 microframe duration of equal value, the preliminary message is to be sent from the host to the
9 storage element;

the device is coupled to the data forwarding element by a high/full/low-speed bus;

the preliminary message is to be sent from the data forwarding element to the device and
the reply is to be sent from the device to the data forwarding element during a span of time
beginning at and including a second microframe and continuing until some value 'N'-1
microframes after said second microframe; and

the at least one secondary message is to be sent from the host to the storage element and the reply is to be sent from the storage element to the host during a last microframe, 'N' microframes after said second microframe.

14. The system of claim 13, wherein the data forwarding element and the device maintain a perception of each microframe that is advanced in phase an advance amount with respect to the perception of each microframe by the host and the storage element.

15. The system of claim 13, wherein 'N' is a positive whole number.

16. The system of claim 1, wherein:

during a first host microframe of a plurality of microframes within a frame of a plurality of frames, each microframe having a microframe duration of equal value, the preliminary message is to be sent from the host to the storage element;

the device is coupled to the data forwarding element by a high/full/low-speed bus;

the data forwarding element and the device maintain a perception of each microframe that is advanced in phase an advance amount with respect to the perception of each microframe by the host and the storage element, such that the preliminary message can be sent from the data forwarding element to the device at the beginning of a first device microframe and the reply is to be sent from the device to the data forwarding element during said first device microframe; and

the at least one secondary message is to be sent from the host to the storage element once per microframe, starting with the third host microframe, until some value 'M' microframes have passed.

1 17. The system of claim 16, wherein the at least one secondary message is to be sent from the
2 host to the storage element once per microframe, starting with the third host microframe, until
3 the reply is received by the host.

1 18. The system of claim 17, wherein 'M' = 3.

1 19. The system of claim 1, wherein:

2 during an eight microframe of a plurality of microframes within a first frame of a
3 plurality of microframes, each microframe having a microframe duration of equal value and each
4 frame consisting of an equal number of microframes, the preliminary message is to be sent from
5 the host to the storage element;

6 the device is coupled to the data forwarding element by a high/full/low-speed bus;

7 the preliminary message is to be sent from the data forwarding element to the device and
8 the reply is to be sent from the device to the data forwarding element during a second frame of
9 said plurality of frames; and

10 the at least one secondary message is to be sent from the host to the storage element and
11 the reply is to be sent from the storage element to the host during a first microframe of a third
12 frame of said plurality of frames.

1 20. The system of claim 19, wherein each frame consists of eight microframes.

1 21. A device for communication with a host,

2 said device to receive a preliminary message from a host via a storage element and a data
3 forwarding device and to transmit a reply for storage in said storage element until at least one
4 secondary message is received from the host, whereupon the reply is sent from the storage
5 element to the host; wherein
6 said host is coupled to said storage element by a first high-speed bus;
7 said device is coupled to said data forwarding element by a second high-speed bus; and
8 said data forwarding element is coupled to said storage element via a data transmission
9 medium.

22. The device of claim 21, wherein the first high-speed bus and the second high-speed bus
operate under Universal Serial Bus (USB) protocol.

23. The device of claim 22 further comprising:

2 a first transceiver communicatively coupled between the storage element and the data
3 transmission medium; and

4 a second transceiver communicatively coupled between the data transmission medium
5 and the data forwarding element; wherein

6 said first transceiver and said second transceiver are to provide protocol translation,
7 allowing non-USB protocol transmission on the data transmission medium.

1 24. A method for communication between a host and a device, comprising:

2 coupling a host to a storage element by a first high-speed bus;

3 coupling a device to a data forwarding element by a second high-speed bus;

4 coupling said data forwarding element to said storage element via a data transmission
5 medium;

6 receiving a preliminary message by said device from said host; and

7 sending, by said device, a reply, in response to the preliminary message, for storage in the
8 storage element; and

9 sending by the storage element, after at least one secondary message is sent from the host
10 to the storage element, said reply from the storage element to the host.

1 25. The system of claim 24, wherein the preliminary message is a data request, the at least
2 one secondary message is a data request follow-up, and the reply is a data reply.

3 26. The system of claim 25, wherein the preliminary message is a data send, the at least one
4 secondary message is a data send follow-up, and the reply is a data receipt acknowledgement.

5 27. The system of claim 24, wherein the first high-speed bus and the second high-speed bus
6 operate under Universal Serial Bus (USB) protocol.

7 28. The system of claim 24, wherein the preliminary message is a start split and the at least
8 one secondary message is a complete split.

9 29. A set of instructions residing in a storage medium, said set of instructions capable of
10 being executed by a processor to communicate between a host and a device, comprising:
1 coupling a host to a storage element by a first high-speed bus;

4 coupling a device to a data forwarding element by a second high-speed bus;
5 coupling said data forwarding element to said storage element via a data transmission
6 medium;
7 receiving a preliminary message by said device from said host; and
8 sending, by said device, a reply, in response to the preliminary message, for storage in the
9 storage element; and
10 sending, by the storage element, after at least one secondary message is sent from the
11 host to the storage element, said reply from the storage element to the host.

1 30. The system of claim 29, wherein the preliminary message is a data request, the at least
2 one secondary message is a data request follow-up, and the reply is a data reply.

3 31. The system of claim 29, wherein the preliminary message is a data send, the at least one
4 secondary message is a data send follow-up, and the reply is a data receipt acknowledgement.

5 32. The system of claim 29, wherein the first high-speed bus and the second high-speed bus
6 operate under Universal Serial Bus (USB) protocol.

7 33. The system of claim 29, wherein the preliminary message is a start split and the at least
8 one secondary message is a complete split.